



## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

#### 50 CFR Parts 223 and 226

[Docket No. 220408-0090; RTID 0648-XR119]

### Endangered and Threatened Wildlife and Plants; Removal of Johnson's Seagrass from the Federal List of Threatened and Endangered Species Including the Corresponding Designated Critical Habitat

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Final rule.

**SUMMARY:** We, NMFS, are issuing a final rule to remove Johnson's seagrass (*Halophila johnsonii*) from the Federal List of Threatened and Endangered Species. To correspond with this action, we are also removing the critical habitat designation for Johnson's seagrass. These actions are based on newly obtained genetic data that demonstrate that Johnson's seagrass is not a unique taxon but rather a clone of an Indo-Pacific species, *Halophila ovalis*. Therefore, Johnson's seagrass does not meet the statutory definition of a species and does not qualify for listing under the Endangered Species Act (ESA). After considering public comment on the proposed rule, we are implementing this final rule to execute the proposed changes to the listing and critical habitat for Johnson's seagrass.

**DATES:** This final rule is effective on [insert date 30 days after date of publication in the *FEDERAL REGISTER*]

**FOR FURTHER INFORMATION CONTACT:** Adam Brame, NMFS Southeast Regional Office, [Adam.Brame@noaa.gov](mailto:Adam.Brame@noaa.gov), (727) 209-5958.

**SUPPLEMENTARY INFORMATION:**

## Background

In 1980, a small-statured seagrass species found within Florida's southeastern coastal lagoon system was identified as Johnson's seagrass (*Halophila johnsonii*) (Eiseman and McMillan 1980). Prior to this designation, this seagrass was often referred to as *H. decipiens*, though it was most similar to the morphologically diverse Indo-Pacific species, *H. ovalis*. Morphological and physiological characteristics were the bases for its later taxonomic identification as *H. johnsonii*. For example, Johnson's seagrass was differentiated from other Atlantic *Halophila* species by its smooth leaf margins, angle of the cross veins extending from the midrib, and the lack of hairs on the blade surface (Eiseman and McMillan 1980).

Given the extremely limited geographical distribution of Johnson's seagrass (about 200 kilometers (km) of Florida's east coast), its limited reproductive potential (only asexual reproduction), and the variety of threats that could affect survival, we conducted a status review in 1993 to consider whether Johnson's seagrass should be added to the Federal List of Threatened and Endangered Species. We published a proposed rule to list the species as threatened on September 15, 1993 (58 FR 48326), and a proposed rule to designate critical habitat on August 4, 1994 (59 FR 39716). Additional research on the ecology of this species subsequently became available and was considered in an updated status review, which was completed in 1997. We published a final rule listing Johnson's seagrass as a threatened species in 1998 (63 FR 49035, September 14, 1998) and a final rule designating critical habitat in 2000 (65 FR 17786, April 5, 2000).

A peer reviewed manuscript published in October 2021 (Waycott et al. 2021), used a variety of genetic analyses to conclude that Johnson's seagrass is not a unique taxon but rather a clone of the Indo-Pacific species *H. ovalis*. In light of this new information, we initiated and completed a status review for *H. johnsonii*, which is

documented in the proposed rule published December 23, 2021 (86 FR 72908). Based on the best available scientific information as described in the proposed rule, we determined that Johnson's seagrass no longer meets the statutory definition of a species and therefore proposed to delist it under the ESA.

### **Basis for the Proposed Rule**

Section 3 of the ESA defines the term "species" as any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature 16 U.S.C. 1532(16). Pursuant to implementing regulations in 50 CFR 424.11(a), in determining whether a particular taxon or population is a species under the ESA, we rely on standard taxonomic distinctions as well as our biological expertise and that of the scientific community concerning the relevant taxonomic group.

Under section 4(c) of the ESA, the Secretary is required to periodically review and revise the Federal List of Endangered and Threatened Species and consider, among other things, whether a species' listing status should be changed, including whether the species should be removed from the list (16 U.S.C. 1533(c)). Pursuant to implementing regulations for the ESA at 50 CFR 424.11(e), the Secretary shall delist a species if, after conducting a status review based on the best scientific and commercial data available, the Secretary determines: (1) the species is extinct; (2) the species does not meet the definition of an endangered species or threatened species; or (3) the listed entity does not meet the statutory definition of a species. When conducting a status review, if we determine the entity under review does not meet the statutory definition of a species, the status review concludes without further evaluation, because we can only list entities that qualify as species under the ESA.

The entity described as Johnson's seagrass grows in a variety of conditions within Florida's intracoastal waters from Sebastian Inlet to Virginia Key in Biscayne Bay. This

is the smallest geographic distribution of any seagrass worldwide. Within this range, it is among the least abundant seagrass. It grows in small, sparse patches and may disappear from areas for months or years before reappearing. It can co-occur with other seagrasses, but its short stature precludes it from occurring within dense stands of taller species because it is outcompeted for light resources. Johnson's seagrass has a broader tolerance range for light, temperature, and salinity than congeners and seems capable of growing in suboptimal conditions where other species cannot survive. Johnson's seagrass grows in the intertidal zone, on dynamic flood deltas inside ocean inlets, at the mouths of freshwater discharge canals, and subtidal waters to depths of approximately 3-4 meters.

Johnson's seagrass is dioecious, meaning each plant only contains the flowers of one sex (male or female). Interestingly, no individual Johnson's seagrass plants have been found with male flowers. Similarly, researchers have not found any seedlings. These observations suggest that Johnson's seagrass reproduces only through vegetative fragmentation (asexual reproduction) and not through the development and dispersal of seeds (sexual reproduction). This strategy likely hinders its ability to expand in range and may slow recolonization following disturbances.

At the time of listing, the best available data indicated Johnson's seagrass: (1) had perhaps the smallest geographic range of any seagrass species worldwide; (2) had a sparse, patchy distribution throughout its range and an ability to survive in a variety of environmental conditions; (3) lacked male flowers necessary for sexual reproduction and therefore appeared to only reproduce asexually; and (4) was unique from other North American *Halophila* species based on morphology, physiological ecology, and genetic analyses. However, the unique life history and ecology of this seagrass raised questions about its phylogeny (history of the evolution of a species or group, including relatedness within a group). The 1997 status review indicated that more detailed studies were

necessary to evaluate the overall genetic structure and diversity of *H. johnsonii*. This need was reiterated in the 2002 Johnson's Seagrass Recovery Plan.

A 1997 genetics study using randomly amplified primer DNA-polymerase chain reactions (RAPD-PCR) indicated that genetic diversity was higher than expected at one location within the range of Johnson's seagrass (Jewitt-Smith *et al.* 1997). Yet this study relied on a limited sample size, and a subsequent study using similar techniques indicated very low genetic diversity within *H. johnsonii* as compared to the co-occurring species, *H. decipiens* (Freshwater 1999). The low genetic diversity was attributed to the lack of sexual reproduction. The methodology used in assessing these *Halophila* samples did not provide the resolution necessary to make species level conclusions about phylogeny.

A molecular phylogenetic analysis of the genus *Halophila* using internal transcribed spacer (ITS) regions of nuclear ribosomal DNA indicated that *H. johnsonii* could not be distinguished from *H. ovalis* and should be further researched (Waycott *et al.* 2002). Umichura (2008) came to a similar conclusion and suggested that *H. johnsonii* and two other *Halophila* species should be reclassified as the broadly distributed *H. ovalis*. Short *et al.* (2010) used ITS regions of nuclear ribosomal sequences and morphology to demonstrate that *Halophila* samples from Antigua belonged to *H. ovalis* and were genetically identical to *H. johnsonii*. Short *et al.* (2010) also found that *Halophila* samples from both Antigua and the United States (the latter of which were previously identified as *H. johnsonii*) fell within the range of morphological characteristics diagnostic for *H. ovalis*, and particularly for *H. ovalis* from east Africa. The outcomes of these studies raised more questions about the taxonomy of *Halophila* species, particularly *H. johnsonii*, given its unusually restricted geographic range, its limited reproductive strategy, and its morphometric similarities to other Indo-Pacific species of *Halophila*.

NMFS began funding projects to resolve the taxonomic uncertainty of Johnson's seagrass in 2012. Waycott *et al.* (2015) used multiple genetic approaches including microsatellite DNA and next generation sequencing to detect single nucleotide polymorphisms (SNPs). Results of this work indicated a complete lack of genetic diversity across the range of Johnson's seagrass and through time, indicating all samples analyzed were from a singular clone. Samples collected and analyzed from Antigua contained the same genetic markers as samples from Florida, suggesting these too were part of the same clone (Waycott *et al.* 2015) despite the Antigua samples having been previously identified as *H. ovalis* (Short *et al.* 2010). Finally, Waycott *et al.* (2015) genetically compared samples from both Florida and Antigua with *H. ovalis* samples collected throughout that species' range (Indo-Pacific). Results indicated all samples, regardless of location or identification, had allelic overlap (same gene variations) at 6 of 10 microsatellite loci analyzed, suggesting samples from the Atlantic originated from *H. ovalis* of the Indo-Pacific. While this report provided further evidence that *H. johnsonii* was not a unique taxon, SNP locations for *H. ovalis* had yet to be verified for *H. johnsonii* samples and the report did not present a comprehensive population genetic analysis of *H. ovalis*.

NMFS provided support for a follow-up study in 2017, recently published as Waycott *et al.* (2021). This study expanded previous efforts with the intent of solidifying the methods and providing a robust conclusion regarding the taxonomic uncertainty within the *H. ovalis* complex. The study used multiple methodological approaches and created molecular data sets for samples of both *H. johnsonii* and *H. ovalis* collected throughout the range of each species. Phylogenetic analyses of 105 samples of *Halophila* spp. from 19 countries using plastid (17,999 base pairs (bp)) and nuclear (6,449 bp) DNA sequences derived from hybrid capture both resolved *H. johnsonii* within *H. ovalis*. A third phylogenetic analysis using 48 samples from 13 populations identified 990 genome-

wide SNPs (generated via double digest restriction-site associated digest sequencing (ddRAD)) and also nested *H. johnsonii* within *H. ovalis*. All three phylogenetic analyses indicated *H. johnsonii* samples were most similar to *H. ovalis* samples from Antigua and east Africa.

Waycott *et al.* (2021) also assessed population-level differences using both the genome-wide SNPs (990) developed in the phylogenetic analysis (47 of the 48 samples from 13 populations) and microsatellites (294 samples at 10 microsatellite loci). Cluster analysis indicated three populations within the *H. ovalis* complex, with *H. johnsonii* being part of the Indo-Pacific/Atlantic clade. Other results demonstrated genetic uniformity of all 132 *H. johnsonii* samples, indicating a complete lack of genetic diversity that is consistent with clonal (asexual) reproduction and a single colonization event. These same 132 samples and the 12 *H. ovalis* samples from Antigua shared a single multilocus genotype at all nine comparable microsatellite loci. Furthermore, all 12 *H. johnsonii* samples and the single *H. ovalis* sample from Antigua genotyped with ddRAD loci shared the same multilocus genotype. In contrast, other *H. ovalis* populations, such as those from Australia, generally had multiple multilocus genotypes and substantial genetic diversity, indicating that the genetic markers would have detected differences if they were present. The population-level analyses indicate that *H. johnsonii* is genetically indistinguishable from *H. ovalis*, clustering with samples from Antigua and east Africa.

Collectively, the Waycott *et al.* (2021) study concluded that the entire range of *H. johnsonii* is a single clone of a morphological variant of the Indo-Pacific species *H. ovalis*. After reviewing the best information available, we agree that *H. johnsonii* should be synonymized with *H. ovalis* and not considered a separate taxonomic species. It cannot qualify as a distinct population segment (DPS) under the statutory definition of a species because DPSs can be identified only for vertebrate fish or wildlife, not plants.

Therefore, *H. johnsonii* does not meet the statutory definition of a species under the ESA, and on that basis, we published a proposed rule on December 23, 2021, to remove Johnson's seagrass from the Federal List of Threatened and Endangered Species and to remove its corresponding critical habitat from 50 CFR part 226 (86 FR 72908).

### **Public Comment**

Upon publication of the proposed rule, we solicited comments during a 60-day public comment period from all interested parties. We received nine comments, two of which were nearly identical. Summaries of the comments received and our responses are provided in the following paragraphs.

*Comment 1:* Four commenters supported the proposed delisting based on the information provided in the proposed rule.

*Response:* We thank these commenters for their support of the proposed delisting.

*Comment 2:* Two commenters disagreed with the proposed delisting on the basis of the need to continue to protect all seagrasses and seagrass habitats given the unique ecosystem functions they provide. One of these commenters recognized our finding that *H. johnsonii* is not a species eligible for listing because it is a clone of *H. ovalis*, but suggested that *H. ovalis* found in Florida should be listed given the ongoing threats it faces there.

*Response:* While we agree with the commenters that seagrasses serve a critical ecosystem function by, for example, stabilizing substrate and providing both forage and habitat for a variety of species, the best scientific information available indicates that this seagrass is not a unique taxon but rather a clone of the Indo-Pacific species *H. ovalis*. Synonymizing *H. johnsonii* with *H. ovalis* means the entity currently listed under the ESA as Johnson's seagrass is not a taxonomic species, and is therefore not eligible for listing under the ESA. *H. ovalis* could be considered for future listing under the ESA. However, that would require a separate review to consider the status of that species



throughout the entirety or a significant portion of its range. At that time, we would be able to evaluate whether the species is eligible for and should be listed because of any of the threats it faces in waters off Florida.

We agree with the importance of seagrasses to the environments in which they are found. Though delisting *H. johnsonii* from the ESA removes the protections of the ESA for this “species” and its critical habitat, NMFS will continue to support seagrass conservation under other statutory authorities. For example, the South Atlantic Fishery Management Council has identified seagrass and habitats containing seagrasses as essential fish habitat (EFH) for certain federally-managed fish species in the South Atlantic, such as snapper and grouper, under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). EFH is defined as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” 16 U.S.C. 1802(10). As required under the MSA, federal agencies (*e.g.*, U.S. Army Corps of Engineers) consult with NMFS on any action that may adversely affect EFH 16 U.S.C. 1855(b)(2). NMFS provides comments and EFH Conservation Recommendations for those actions that affect EFH and those recommendations can include measures to ensure federal projects avoid, minimize, and, if necessary, mitigate impacts to EFH as a means to conserve and promote sustainable fisheries. 16 U.S.C. 1855(b)(4); 50 CFR 600.905(b), 600.920, and 600.925. The delisting under the ESA does not affect the mechanisms to conserve and protect seagrasses as EFH under the Magnuson-Stevens Fishery Conservation and Management Act.

*Comment 3:* One commenter agreed with the agency’s rationale for delisting this seagrass but recommended further consideration for retaining the critical habitat designation as a means of overall ecosystem conservation.

*Response:* Critical habitat can only be designated for species on the Federal List of Threatened and Endangered Species (16 U.S.C. 1532(5), 16 U.S.C. 1533(a)(3)).

Therefore, the Johnson's seagrass critical habitat designation cannot be retained when the species is removed from the List.

*Comment 4:* One commenter agreed with the agency's rationale for delisting Johnson's seagrass but expressed concern that removal from the list could adversely affect other seagrasses that co-occupy habitat in that region.

*Response:* As discussed previously, NMFS agrees with the importance of seagrasses and their habitats and will continue to promote conservation through the MSA (see response to Comment 2).

### **Summary of Changes From Proposed Rule**

We evaluated whether any pertinent scientific or commercial information became available since publication of the proposed rule. We reviewed the best available scientific and commercial information, including all public comments. Based on all available information, we have made no changes from the proposed rule.

### **Final Determination and Effects of Determination**

As proposed on December 23, 2021 (86 FR 72908), and concluded with this final rule, we remove *H. johnsonii* from the Federal List of Threatened and Endangered Species because the best available scientific and commercial data indicate that the listed entity is synonymous with *H. ovalis* and does not meet the statutory definition of a species. Because critical habitat can only be designated for species listed under the ESA, we also remove the designated critical habitat for *H. johnsonii*. As of the effective date, the protections of the ESA will no longer apply to *H. johnsonii*. However, the delisting of *H. johnsonii* and removal of the designated critical habitat are specific to the ESA and will have no effect on other Federal, state, county, or local seagrass protections that may be in place. In addition, because *H. ovalis* is not listed as an endangered species or threatened species under the ESA, our delisting of *H. johnsonii* will have no effect on the status of *H. ovalis*.

Per the joint NMFS–U.S. Fish and Wildlife Service Post-Delisting Monitoring Plan Guidance (2008, updated in 2018), the post-delisting monitoring requirements of section 4(g) of the ESA apply without exception to all species delisted due to biological recovery, but do not pertain to species delisted for other reasons, such as taxonomic revision. Based on this reasoning, there is no need for a post-delisting monitoring plan for *H. johnsonii*.

## **References Cited**

The complete citations for the references used in this document can be obtained by contacting NMFS (See **ADDRESSES** and **FOR FURTHER INFORMATION CONTACT**).

## **Information Quality Act and Peer Review**

In December 2004, the Office of Management and Budget (OMB) issued a Final Information Quality Bulletin for Peer Review establishing minimum peer review standards, a transparent process for public disclosure of peer review planning, and opportunities for public participation. The OMB Peer Review Bulletin, implemented under the Information Quality Act (Pub. L. 106–554), is intended to enhance the quality and credibility of the Federal Government’s scientific information, and applies to influential or highly influential scientific information disseminated on or after June 16, 2005.

To satisfy the requirements under the OMB Peer Review Bulletin, the Waycott *et al.* (2021) manuscript was subjected to peer review in accordance with the Bulletin. Our proposed action relies upon new information within the manuscript, which we consider “influential scientific information.” While the manuscript was published in the peer-reviewed journal *Frontiers in Marine Science*, and peer reviewed by that journal prior to publication, we also peer reviewed the manuscript. We established a peer review plan that consisted of subjecting the manuscript to review by a panel of four expert reviewers

identified by NOAA's Genetics Group. The peer review plan, which included the charge statement to the peer reviewers, and the resulting peer review report are posted on the NOAA peer review agenda at: <https://www.noaa.gov/organization/information-technology/peer-review-plans>. In meeting the OMB Peer Review Bulletin requirements, we have also satisfied the requirements of the 1994 joint U.S. Fish and Wildlife Service and NMFS peer review policy (59 FR 34270, July 1, 1994).

## **Classification**

### *National Environmental Policy Act (NEPA)*

The 1982 amendments to the ESA, in section 4(b)(1)(A), restrict the information that may be considered when assessing species for listing to the best scientific and commercial data available. Based on this limitation of criteria for a listing decision and the opinion in *Pacific Legal Foundation v. Andrus*, 657 F. 2d 829 (6th Cir. 1981), we have concluded that NEPA does not apply to ESA listing actions. (See NOAA Administrative Order 216-6A and the Companion Manual for NOAA Administrative Order 216-6A, regarding Policy and Procedures for Compliance with the National Environmental Policy Act and Related Authorities)

### *Executive Order 12866, Regulatory Flexibility Act, and Paperwork Reduction Act*

As noted in the Conference Report on the 1982 amendments to the ESA, economic impacts cannot be considered when assessing the status of a species. Therefore, the economic analysis requirements of the Regulatory Flexibility Act are not applicable to the listing process. In addition, this final rule is exempt from review under Executive Order 12866. This final rule does not contain a collection of information requirement for the purposes of the Paperwork Reduction Act.

### *Executive Order 13132, Federalism*

E.O. 13132 requires agencies to take into account any federalism impacts of regulations under development. It includes specific consultation directives for situations

where a regulation will preempt state and local law, or impose substantial direct compliance costs on state and local governments (unless required by statute). Neither of these circumstances is applicable to this final rule.

## **List of Subjects**

### **50 CFR Part 223**

Endangered and threatened species.

### **50 CFR Part 226**

Endangered and threatened species.

**Dated:** April 11, 2022.

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Samuel D. Rauch, III

Deputy Assistant Administrator for Regulatory Programs,

National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR parts 223 and 226 are amended as follows:

## **PART 223—THREATENED MARINE AND ANADROMOUS SPECIES**

1. The authority citation for part 223 continues to read as follows:

**Authority:** 16 U.S.C. 1531-1543; subpart B, § 223.201-202 also issued under 16 U.S.C. 1361 et seq.; 16 U.S.C. 5503(d) for § 223.206(d)(9).

### **§ 223.102 [Amended]**

2. In § 223.102, in the table in paragraph (e), remove the undesiganted heading “Marine Plants” and the entry for “Seagrass, Johnson’s”.

## **PART 226—DESIGNATED CRITICAL HABITAT**

3. The authority citation for part 226 continues to read as follows:

**Authority:** 16 U.S.C. 1533.

### **§ 226.213 [Removed and Reserved]**

4. Remove and reserve § 226.213.

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